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United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington



Water Supply Outlook for Washington

as of FEBRUARY 1, 1984



TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: "Spring is on its way"

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P.O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Montana 59715
Nevada	P.O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P.O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS

ISSUED BY

PETER C. MYERS

Chief

**SOIL CONSERVATION SERVICE
WASHINGTON, D.C.**

RELEASED BY

LYNN A. BROWN

**STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON**

FORECASTS BY

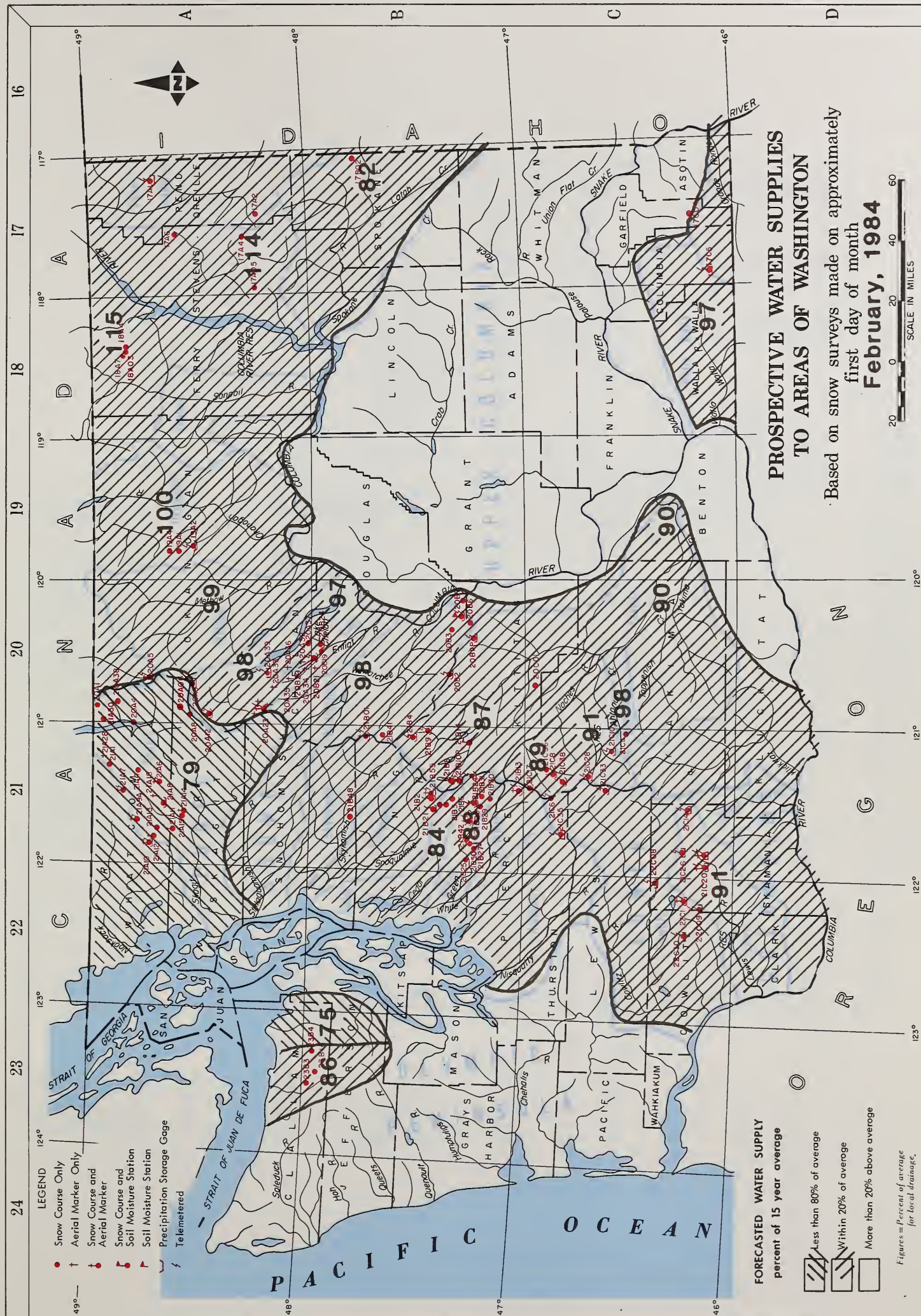
**SOIL CONSERVATION SERVICE
WATER SUPPLY FORECASTING STAFF, WNTC
PORTLAND, OREGON
and
NATIONAL WEATHER SERVICE
RIVER FORECAST CENTER
PORTLAND, OREGON**

REPORT PREPARED BY

WILLIAM F. WELLER, Hydrologist

JOLA L. MICKELSEN, Secretary

**SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201**



INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1SP	24	37N	44E	5000
Kettle River					
Summit G. S.	18A7	20	39N	35E	4600
Butte Creek	18A3	28	39N	35E	4070
Goat Creek	18A4	26	39N	35E	3595
Spokane River					
Rogged Ridge	17B02	12	27N	45E	3333
Calville River					
Boird	17A6	19	36N	42E	3215
Stranger Mountain	17A5	26	31N	38E	4990
Chewelah	17A4	11	32N	41E	4925
Okanogan River					
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Salman Meadows	19A2SP	33	37N	24E	4500
Methow River					
Harts Pass	20A5SP	7	37N	18E	6500
Chelan Lake Basin					
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Ridge	20A12SP	18	34N	16E	4600
Rainy Pass	20A9SP	21	35N	17E	4780
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A33a	2	29N	17E	3325
Fox Camp	20A36a	17	30N	18E	6310
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Stevens Pass	21B1SP	14	26N	13E	4070
Trough #2	20B25SP	10	20N	20E	5310
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Stemilt Creek					
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
Lake Cle Elum	21B14M	15	20N	14E	2200
Morse Lake	21C17SP	6	16N	11E	5400
Tunnel Avenue	21B8P	13	21N	11E	2450
White Pass (East Side)	21C28SP	2	13N	11E	4500

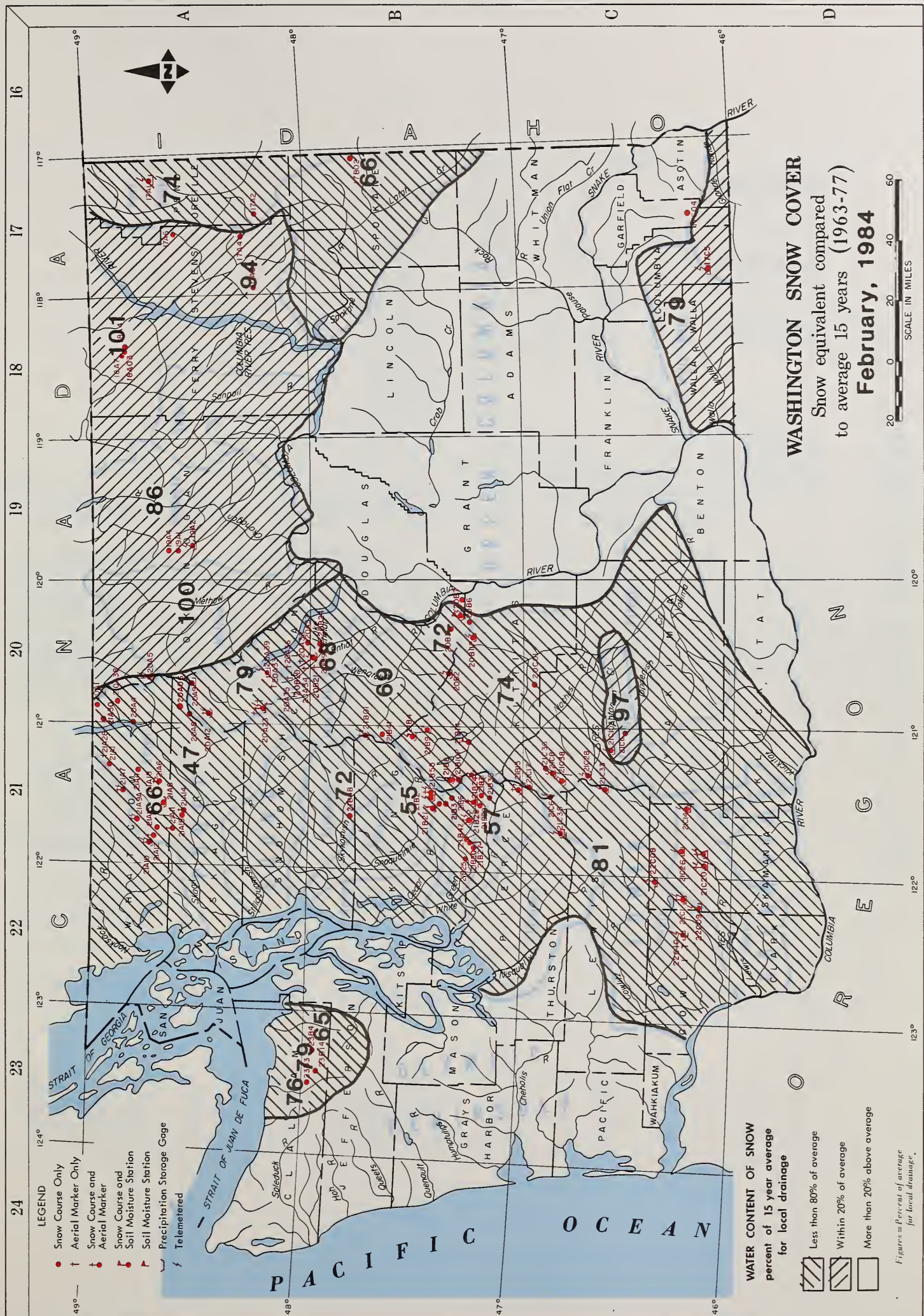
NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Touchet No. 2	17C5SP	6	7N	40E	5530
Lewis River					
June Lake	22C09SP	26	8N	5E	3200
Lane Pine Shelter	21C26SP	8	9N	7E	3800
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Patata Hill	21C14SP	36	10N	10E	4500
Sheep Canyon	22C10SP	12	8N	4E	4050
Strawberry	22C08SP	9	10N	6E	3280

NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.
PUGET SOUND DRAINAGE					
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Carroll Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Gross Mountain No. 2	21B27	14	20N	8E	2900
Gross Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
Olallie Meadows East	21B55SP	20	22N	11E	3700
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	20A06	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hazoneen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A07	10	35N	14E	4200

NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.
Baker River					
Dack Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	37N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

NAME	NUMBER	SEC.	TMP.	RANGE	ELEV.
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Cox Valley					
	23B14	31	29N	6W	4500

- LEGEND
- 21A7 Snow Course Only
 - 21A7a Aerial Marker Only
 - 21A7b Snow Course And Aerial Marker
 - 21A7M Snow Course And Soil Moisture Station
 - 21A7m Soil Moisture Station
 - 21A7P Snow Course And Precipitation Storage Gage
 - 21A7P Precipitation Storage Gage
 - 21A7SP Snow Pillow



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NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.			
UPPER COLUMBIA DRAINAGE						LOWER COLUMBIA DRAINAGE								
Bayer Mountain Bunchgrass Meadow	17A2	7	31N	43E	5250	Spruce Springs	17C4	9	8N	40E	5700			
	17A1SP	24	37N	44E	5000									
Summit G. S. Butte Creek Goat Creek	18A7	20	39N	35E	4600	Touchet No. 2	17C5SP	6	7N	40E	5530			
	18A3	28	39N	35E	4070									
	18A4	26	39N	35E	3595									
Rogged Ridge	17B02	12	27N	45E	3333	June Lake Lone Pine Shelter Plains of Abraham Spencer Meadow Surprise Lakes	22C09SP	26	8N	5E	3200			
									8	9N	7E	3800		
									22C15P	35	9N	5E	4400	
Baird Stranger Mountain Chewelah	17A6	19	36N	42E	3215	Cowlitz River	21C6	15	16N	10E	5300			
	17A5	26	31N	38E	4990				21C33SP	11	13N	11E	5900	
	17A4	11	32N	41E	4925				21C14SP	36	10N	10E	4500	
Mutton Creek No. 1 Mutton Creek No. 2 Salmon Meadows	19A1	30	37N	24E	5700	Sheep Canyon Strawberry	22C10SP	12	8N	4E	4050			
	19A4	19	37N	24E	6000				22C08SP	9	10N	6E	3280	
	19A2SP	33	37N	24E	4500									
Harts Pass	20A5SP	7	37N	18E	6500	Paradise Park (New)	21C35SP	13	15N	8E	5500			
Lyman Lake Park Creek Ridge Rainy Pass Mirror Lake	20A23SP	18	31N	16E	5900	Coral Pass	21B13SP	30	18N	11E	6000			
	20A12SP	18	34N	16E	4600									
	20A9SP	21	35N	17E	4780									
Brief Entiat Meadows Entiat River Trail Fox Camp Pope Ridge Pope Ridge Snow Pillow Pugh Ridge Shady Pass Snow Brushy Tommy Creek	20B19	34	28N	19E	1600	Green River	21B24P	18	20N	11E	1800			
	20A33a	28	31N	17E	4540				21B25	27	21N	8E	1200	
	20A34a	2	29N	17E	3325				21B42SP	21	21N	9E	3200	
Wenatchee River	20B20	22	29N	18E	3540	Cougar Mountain Grass Mountain No. 2 Grass Mountain No. 3 Lester Creek Lynn Lake Sawmill Ridge Stampede Pass Twin Camp	21B27	14	20N	8E	2900			
	20B24SP	22	29N	18E	3540				21B28	12	20N	8E	2100	
	20A32a	34	30N	18E	6725				21B29	36	20N	10E	3100	
Berne-Mill Creek (New) Blewett Pass No. 2 Stevens Pass Trough #2	20A37	20	29N	19E	6200	City Cabin Mt. Gardner	21B31	5	19N	11E	4700			
	20A35a	21	30N	17E	3910				21B10 SP	25	21N	11E	3860	
	20B21a	10	28N	18E	4900				21B30	18	19N	11E	4100	
Beehive Springs	20B25SP	10	20N	20E	5310	Alpine Meadow Ollalie Meadows Ollalie Meadows East	21B48	31	27N	9E	3500			
									21B2P	19	22N	11E	3625	
									21B55SP	20	22N	11E	3700	
Stemilt Slide Upper Wheeler	20B6	30	21N	20E	5000	Snoqualmie River	21B55SP	20	22N	11E	3700			
		20B7SP	30	21N	20E			4400						
Ahtanum R. S. Big Boulder Creek Bumping Lake Bumping Lake New Bumping Ridge Fish Lake Green Lake Grouse Camp Lake Cle Elum Morse Lake Tunnel Avenue White Pass (East Side)	21C11	24	12N	14E	3100	Skagit River	21A4	35	39N	12E	2200			
	21B9SP	35	23N	14E	3200				21A1	9	39N	12E	3680	
	21C8P	23	16N	12E	3450				21A28a	26	40N	12E	6000	
Stemilt Slide Upper Wheeler	21C36	13	16N	12E	3400	Beaver Creek Trail Beaver Pass Brown Top Devils Park Freezeout Creek Trail Freezeout Meadows (New) Granite Creek Meadows Cobins New Hozomeen Lake Thunder Basin	20A4	34	38N	16E	5900			
	21C38SP	9	15N	12E	4600				20A1	14	40N	14E	3500	
	21B4SP	28	24N	14E	3371				20A38	8	40N	16E	5000	
Beehive Springs	21C10SP	3	12N	13E	6000	City Cabin Mt. Gardner	21B3	10	21N	10E	2390			
	20B11SP	29	21N	19E	5385				21B21P	30	22N	10E	3300	
	21B14M	15	20N	14E	2200									
Stemilt Slide Upper Wheeler	21C17SP	6	16N	11E	5400	Alpine Meadow Ollalie Meadows Ollalie Meadows East	21B48	31	27N	9E	3500			
	21B8P	13	21N	11E	2450				21B2P	19	22N	11E	3625	
	21C28SP	2	13N	11E	4500				21B55SP	20	22N	11E	3700	

LEGEND
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21A7SP Precipitation Storage Gage
21A7SP Snow Pillow

OLYMPIC PENINSULA

Dungeness River	
Deer Park	23B4 1 28N 5W 5200
Elwha River	
Hurricane	23B3 36 29N 7W 4500
Cox Valley	
	23B14 31 29N 6W 4500

NOTICE

The Snow Survey program has undergone a few changes during the past summer. Bob Davis, the longtime Snow Survey Supervisor in Washington state, retired. We wish Bob the best of everything in retirement

Data collection for the Washington Snow Surveys will be handled out of our Portland, Oregon office. All snow surveys will be sent to the Data Collection Office Supervisor, 1220 S W Third Avenue, 16th Floor, Portland, Oregon 97204. Other data and requests will be handled out of the Spokane office as before. The Spokane contact will be William F. Weller, Water Supply Specialist for the Washinton Soil Conservation Service. Mr Weller can be contacted at (509) 456-3715.

WATER SUPPLY OUTLOOK

State of Washington

February 1, 1984

Near normal water supplies are forecast for most Washington water users this coming spring and summer. The mountain snowpack ranges well below average to average. It is below average in the Spokane, Pend Oreille, Yakima, Wenatchee, Entiat and Methow Rivers. The West Cascade slopes show well below average snowpack, with the Skagit having less than 50% of normal. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage is very good for February 1.

SNOW COVER

Only North Central Washington Watersheds show average snowpack, with the Kettle at 101% and the Methow at 100%. Other Eastern Washington watersheds have snowpacks of 74% on the Pend Oreille, 94% on the Colville, 87% on the Okanogan. The Spokane River snowpack is 66%. Most of the east slope Cascade watersheds have snowpacks in the low 70 to high 60%.

Puget Sound Watersheds are well below normal ranging from a low of 47% on the Skagit to 72% on the Skykomish. Olympic Peninsula Streams are also below average with the Elwha River having a snowpack of 76% and the Dungeness 63%.

PRECIPITATION

Precipitation during the November-January winter period has been above average over the entire state. During this period the Puget Sound area recieved 42.24 inches, 110% of normal. The Yakima-Wenatchee area recieved 5.23 inches, 150% of normal. Precipitation in the south eastern area was 110% of normal.

RESERVOIR STORAGE

Stored water supplies are very good for February 1, with all reporting having above average. The Yakima irrigation reservoirs are storing 796,000 acre feet of water compared to the February 1 average of 656,000, or 121%. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan is at 392,200 acre-feet, 133% of normal and Banks Reservoir is at 697,700 acre-feet, 112% of normal.

STREAMFLOW

River flows during January were generally above average due to warming trends that occurred the first and last weeks of the month. Minor flooding occurred on some Puget Sound streams as well as some of the streams on the east slopes of the Cascades. Spring and summer streamflow are forecast to be within 20% of average over most of the state. The Skagit River at 81%, the Spokane River at 82% and the Dungeness River at 75% are the low forecasts. The northeast streams, the Kettle at 115% and the Colville at 114% are the only ones forecast above average.

STREAMFLOW FORECASTS - FEBRUARY 1984

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1982 and 1983 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		20-Yr. Avg.	Fore- cast period	1983	1982	1981	20-Yr. Average 61-80
<u>COLUMBIA BASIN</u>							
<u>COLUMBIA RIVER SYSTEM</u>	<u>1/</u>						
Columbia River	42400	95	Apr-Sept	43225	48575	48531	44605
at Birchbank	33900	95	Apr-July	34569	38210	38501	35705
	24700	95	Apr-June	24281	27454	27002	26027
Columbia River	61300	92	Apr-Sept	46662	56425	70303	66841
at Grand Coulee	51400	92	Apr-July	34933	43821	58525	56169
	40500	92	Apr-June	26597	32610	44235	44036
Columbia River bl.	68100	94	Apr-Sept	44560	79386	77308	72781
Rock Island Dam	57600	94	Apr-July	58672	66629	64689	61601
	45500	94	Apr-June	69844	50985	49348	48384
Columbia River at	94500	94	Apr-Sept	103682	118503	96188	100800
The Dalles, OR	90700	94	Apr-July	88273	101631	81125	86080
	65600	94	Apr-June	70038	80122	63521	69881
<u>PEND OREILLE RIVER SYSTEM</u>							
Pend Oreille River	12000	78	Apr-Sept	12841	17721	13896	15425
bl. Box Canyon	11000	78	Apr-July	11482	16324	13179	14156
	9500	78	Apr-June	9226	13306	11594	12227
<u>KETTLE RIVER SYSTEM</u>							
Kettle River	2100	115	Apr-Sept	2709	2330	2184	1829
nr. Laurier	1990	114	Apr-July	2534	2174	2013	1738
	1800	114	Apr-June	2251	1747	1657	1581
Colville River	153	114	Apr-Sept	182	160	125	134
at Kettle Falls	140	114	Apr-July	161	146	111	123
	130	114	Apr-June	144	132	95	114

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		% 20-Yr. Avg.	Fore- cast period	1983	1982	1981	20-Yr. Average 61-80
<u>SPOKANE RIVER SYSTEM</u>							
Spokane River 2/ at Post Falls, ID	2340	82	Apr-Sept	M	M	2238	2848
	2260	82	Apr-July	M	M	2145	2754
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River	1460	100	Apr-Sept	1490	1638	1241	1462
nr. Nighthawk	1365	100	Apr-July	1356	1491	1118	1365
	1160	100	Apr-June	1155	1166	930	1161
Okanogan River	1620	99	Apr-Sept	2170	2046	1631	1644
nr. Tonasket	1482	99	Apr-July	1891	1712	1416	1497
	1250	99	Apr-June	1569	1306	1107	1262
<u>METHOW RIVER SYSTEM</u>							
Methow River	970	99	Apr-Sept	1354	1203	786	980
nr. Pateros	900	99	Apr-July	1243	1120	724	908
	765	99	Apr-June	1094	918	602	773
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	1170	97	Apr-Sept	1261	1376	916	1203
at Chelan 3/	1025	97	Apr-July	1104	1223	798	1055
	800	97	Apr-June	901	958	621	826
Stehekin River	840	98	Apr-Sept	M	938	662	860
at Stehekin	710	98	Apr-July	727	800	543	727
	540	98	Apr-June	572	603	403	553
Entiat River	216	92	Apr-Sept	292	282	186	235
nr. Ardenvoir	196	92	Apr-July	263	258	168	213
	158	92	Apr-June	221	206	137	172
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	1200	94	Apr-Sept	M	M	M	1270
nr. Plain	1070	94	Apr-July	M	M	M	1136
	845	94	Apr-June	M	M	M	899
Wenatchee River	1680	98	Apr-Sept	1590	2013	1188	1712
at Peshastin	1510	98	Apr-July	1432	1791	1075	1545
	1210	98	Apr-June	1191	1429	869	1237
Stemilt Basin	117 *	85	May-Sept	M	M	M	**138
nr. Wenatchee							
Icicle Creek	310	84	Apr-Sept	M	M	M	**370
nr. Leavenworth	290	85	Apr-July	M	M	M	**340
	230	85	Apr-June	M	M	M	**270

* Thousands of Miners' Inches.

** Average computed for 1963-1977.

2/ Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho.
Observed flow corrected for storage in Coeur d'Alene Lake and diversions
by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		% 20-Yr. Avg.	Fore- cast period	1983	1982	1981	20-Yr. Average 61-80

YAKIMA RIVER SYSTEM

Yakima River	125	90	Apr-Sept	109	152	95	139
nr. Martin <u>4/</u>	115	90	Apr-July	96	138	82	128
	100	90	Apr-June	81	121	73	111
Yakima River	810	86	Apr-Sept	733	1100	700	943
at Cle Elum <u>5/</u>	735	86	Apr-July	659	1010	643	854
	630	86	Apr-June	589	883	563	734
Yakima River	1900	91	Apr-Sept	2221	2434	1194	2096
nr. Parker <u>6/</u>	1710	90	Apr-July	1958	2193	1059	1898
	1500	90	Apr-June	1722	1909	961	1667
Kachess River	105	87	Apr-Sept	105	134	81	121
nr. Easton <u>7/</u>	100	87	Apr-July	96	126	72	115
	88	87	Apr-June	84	110	66	101
Cle Elum River	425	92	Apr-Sept	421	516	313	463
nr. Roslyn <u>8/</u>	380	90	Apr-July	381	468	282	422
	320	91	Apr-June	324	392	244	353
Bumping River <u>9/</u>	132	93	Apr-Sept	137	161	78	142
nr. Nile	120	93	Apr-July	128	147	70	129
	100	93	Apr-June	109	123	63	107
American River	110	89	Apr-Sept	M	140	63	124
nr. Nile	100	88	Apr-July	M	130	58	113
	83	88	Apr-June	M	109	51	94
Tieton River <u>10/</u>	225	91	Apr-Sept	M	M	148	246
at Tieton Dam	190	92	Apr-July	M	M	131	207
	150	91	Apr-June	M	M	108	165
Naches River <u>11/</u>	800	92	Apr-Sept	966	998	419	867
nr. Naches	720	92	Apr-July	881	945	380	784
	610	91	Apr-June	770	775	339	667
Ahtanum Creek <u>12/</u>	46	98	Apr-Sept	M	M	M	47
nr. Tampico	42	98	Apr-July	M	M	M	43
	36	97	Apr-June	M	M	M	37

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Rosa, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet					
		% 20-Yr. Avg.	Fore- cast period	1983	1982	1981	20-Yr. Average 61-80
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek	17.0	97	Apr-Sept	13.48	24.62	28.5	**17.50
at Walla Walla	16.8	97	Apr-July	13.39	24.48	28.5	**17.33
	16.6	97	Apr-June	13.36	21.63	27.3	**17.15
Lewis River	1140	91	Apr-Sept	1255	1170	1096	1249
at Ariel <u>13/</u>	990	91	Apr-July	1046	1030	971	1086
	875	91	Apr-June	821	927	865	961
Cowlitz River <u>14/</u>	1850	91	Apr-Sept	1935	4936	M	2038
bl. Mayfield Dam	1610	91	Apr-July	1754	1963	M	1778
	1369	91	Apr-June	1424	1722	M	1502
Cowlitz River <u>14/</u>	2240	84	Apr-Sept	2618	2655	2390	2673
at Castle Rock	1950	84	Apr-July	2195	2363	2125	2323
	1660	84	Apr-June	1739	2080	1875	1980
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River	120	75	Apr-Sept	197	196	109	160
nr. Sequim	100	77	Apr-July	158	163	88	130
	72	76	Apr-June	117	117	70	97
<u>ELWHA RIVER SYSTEM</u>							
Elwha River	478	86	Apr-Sept	538	607	380	**553
nr. Port Angeles	390	86	Apr-July	448	512	316	**454
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River	2050	81	Feb-Aug	1995	2248	2119	**2532
at Newhalem <u>15/</u>	1910	81	Apr-Sept	1531	1880	1773	**2356
	1600	81	Apr-July	1061	1439	1431	**1972
	1200	81	Apr-June	698	1004	1064	**1485
<u>GREEN RIVER SYSTEM</u>							
Green River bl.	262	83	Apr-Sept	190	227	268	**316
Howard Hanson Dam <u>16/</u>	235	83	Apr-July	145	195	245	**284
	210	82	Apr-June	107	174	219	**256
<u>CEDAR RIVER SYSTEM</u>							
Cedar River	78	84	Apr-Sept	66	80	74	**93
nr. Cedar Falls							

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

14/ Observed flow corrected for storage in Riffe Lake and Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1984 as percent of the same date in 1983 and 1982 and average of record.

Tributary Basin	No. of Courses Average	1984 Snow Water Expressed as percent of		
		1983	1982	1963-77 Avg.
<u>UPPER COLUMBIA BASIN</u>				
Pend Oreille	7	69	73	74
Ketttle	11	77	89	101
Colville	1	68	82	94
Spokane	4	83	68	66
Okanogan	25	82	83	87
Methow	4	109	113	100
Chelan	4	78	68	79
Entiat	9	66	72	68
Wenatchee	9	72	62	69
Yakima	13	70	71	74
Antanum	2	64	92	97
<u>LOWER COLUMBIA BASIN</u>				
Mill Creek	0	xxx	69	xxx
Cowlitz	1	75	76	81
<u>PUGET SOUND</u>				
White	0	xxx	119	xxx
Green	5	108	49	57
Snoqualmie	1	83	45	55
Skykomish	2	80	67	72
Skagit	14	51	50	47
Baker	8	70	-	66
<u>OLYMPIC PENINSULA</u>				
Morse	1	76	71	79
Elwha	1	83	82	76
Dungeness	1	54	52	63

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February)			
			1984	1983	1982	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	183.6	168.5	72.2	145.3
Columbia	Franklin D. Rossevelt Lake	5232.0	5058.7	5177.2	4961.6	3698.2
Columbia	Banks Lake	714.9	697.7	709.6	704.2	619.4
Okanogan	Conconully Reservoir	13.0	13.	11.5	9.1	6.2
Okanogan	Conconully Lake	10.5	10.4	10.4	8.9	7.6
Chelan	Lake Chelan	676.1	392.3	295.1	319.9	294.2
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	137.1	87.3	82.1	97.6
Kachess	Kachess Lake	239.0	188.8	199.8	148.0	173.4
Cle Elum	Lake Cle Elum	436.9	296.3	284.7	57.6	259.7
Bumping	Bumping Lake	33.7	17.2	6.2	4.0	7.8
Tieton	Rimrock Lake	198.0	151.6	137.8	116.1	118.0
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	1225.3	1045.1	942.9	1012.6
Skagit	Diablo Reservoir	90.6	83.9	83.5	84.0	84.2
Skagit	Gorge Reservoir	9.8	7.7	8.0	7.9	7.9

^{1/} Based on Active Storage
 * 15-yr. Average 1963-1977

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	Fall		Winter	
	Sept-Oct Observed	1983 <u>2/</u> Departures	Nov. 1983 - Observed	Jan. 1984 <u>2/</u> Departures
Northeastern Wash	1.55	-1.55	8.44	+1.73
Southeastern Wash	2.54	-0.06	7.77	+0.71
East slope Cascade	3.76	-0.99	5.55	+1.83
North Central Wash	1.45	-0.14	5.23	+0.39
Northwest Cascade	7.97	-5.24	42.24	+4.31
Southwest Cascade	5.36	-3.32	29.24	+0.33

Northwestern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages
East Slope Cascades	- Yakima, Wenatchee, and Chelan Drainages
North Central Washington	- Methow and Okanogan Drainages
Northwest Slope Cascades	- Puget Sound Drainages
Southwest Slope Cascades	- Lower Columbia Drainages

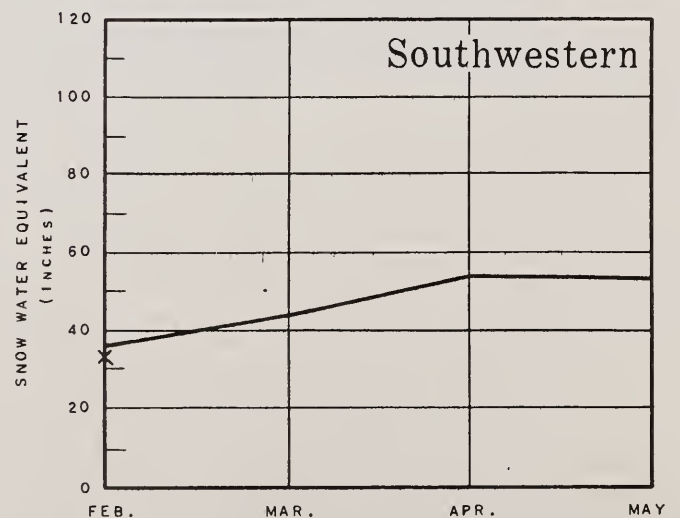
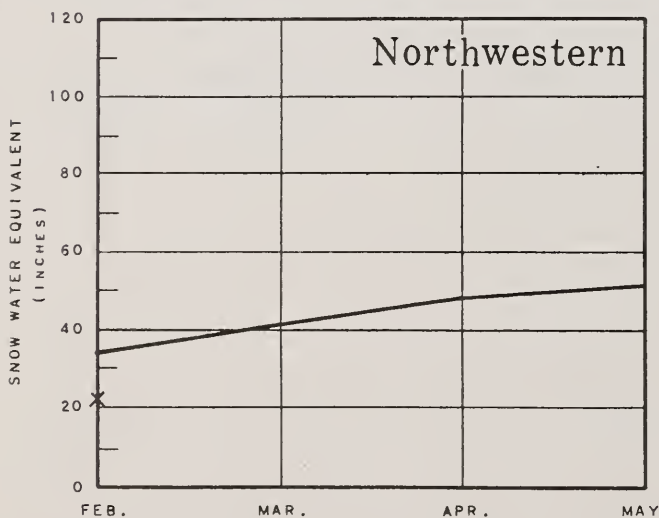
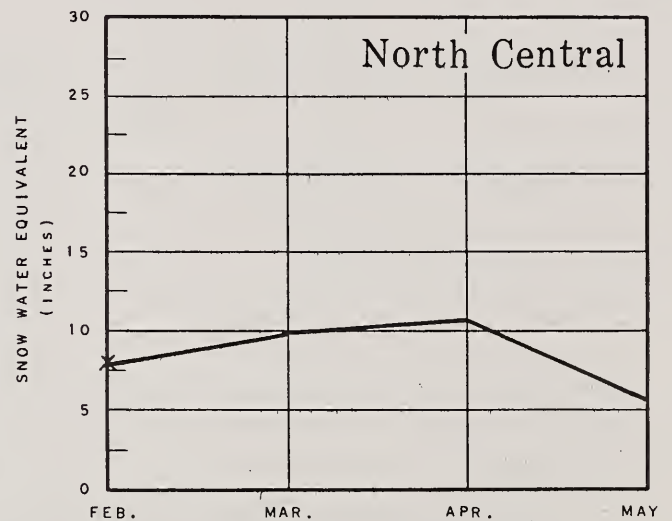
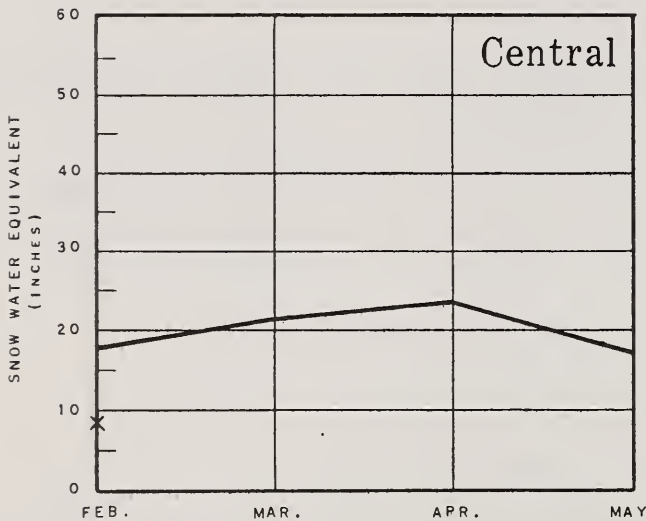
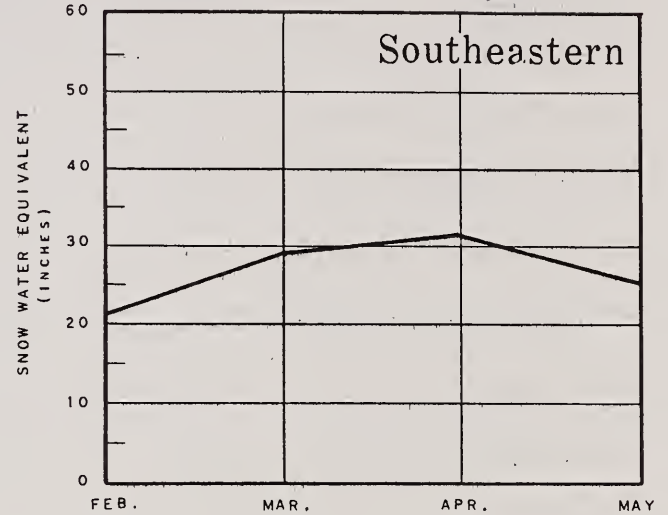
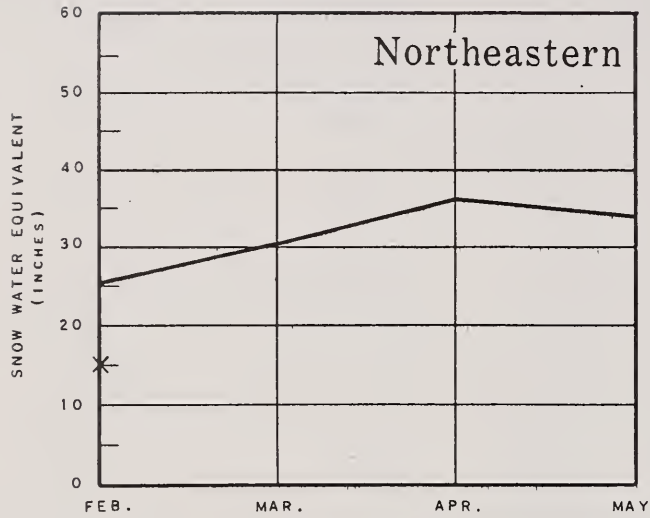
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service

2/ - Departure from 15-year (1958-1972) drainage division average

WASHINGTON SNOW COVER

1984

DRAINAGE AREAS



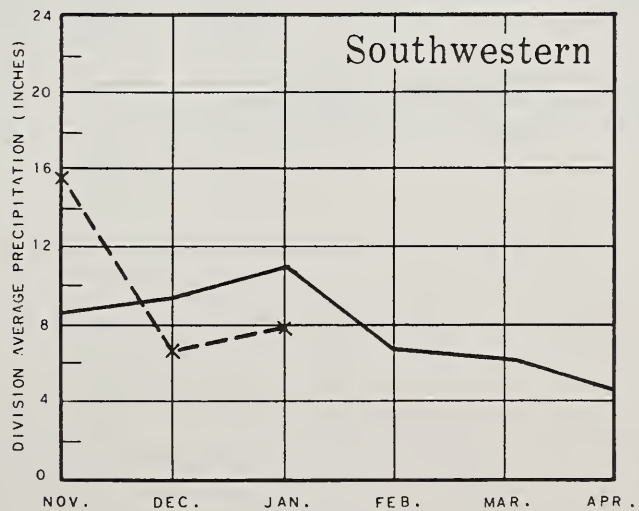
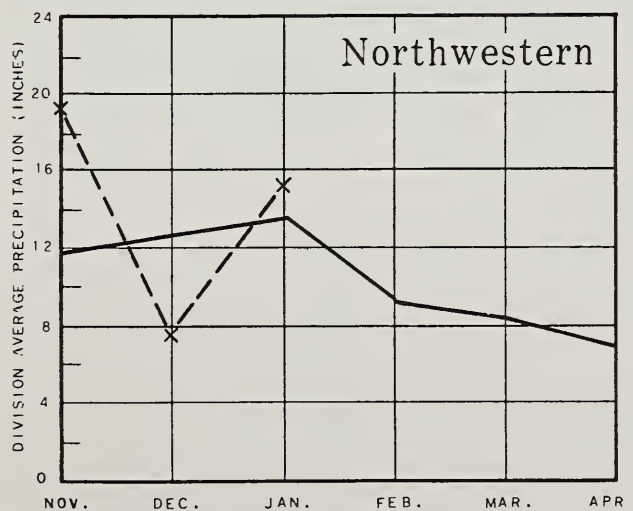
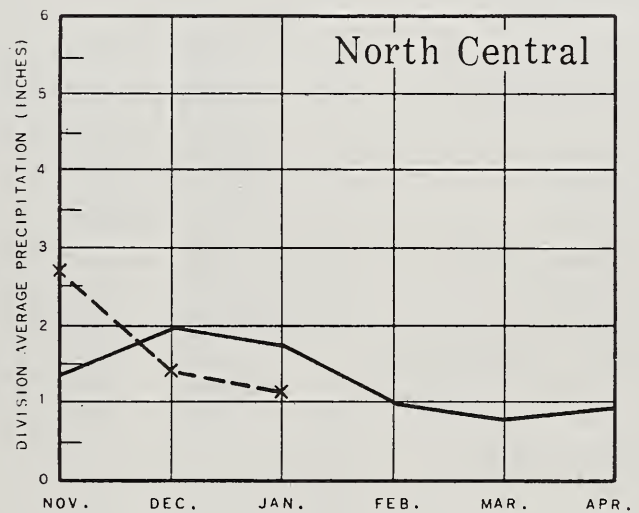
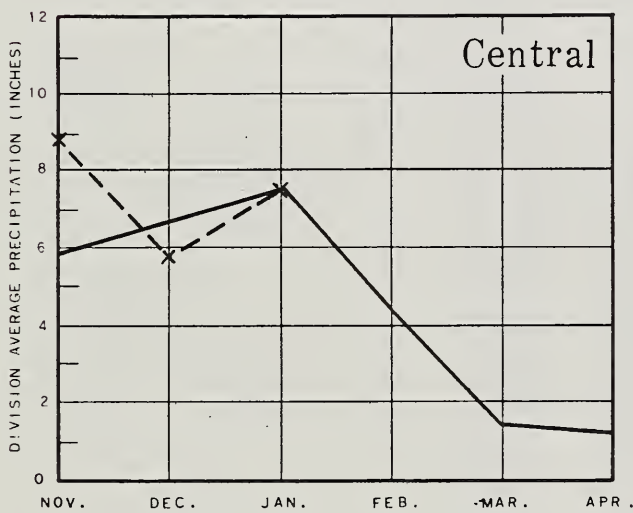
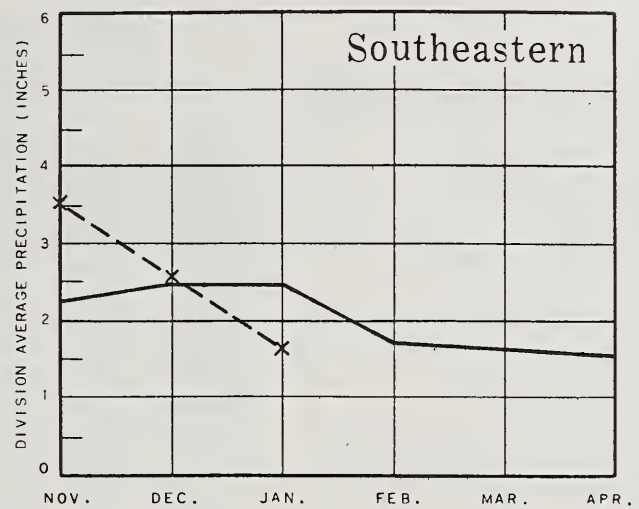
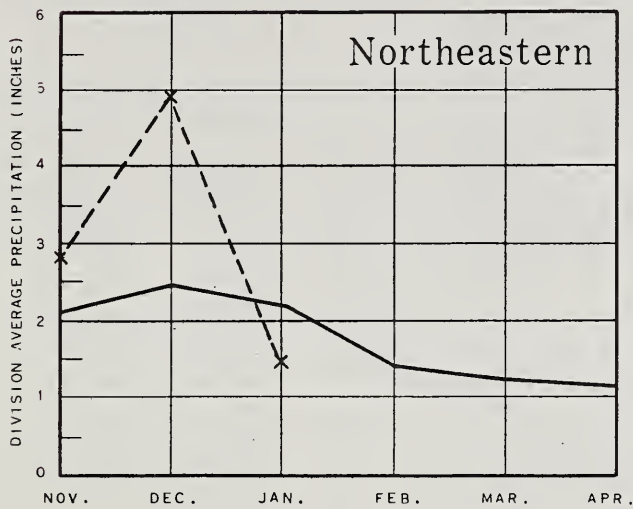
Average —
1984 - - -

Selected Snow Survey Courses by Soil Conservation Service

WASHINGTON VALLEY PRECIPITATION

1984

DRAINAGE AREAS



Average
1984

—

Preliminary Analysis by National Weather Service

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

UPPER COLUMBIA DRAINAGEPEND OREILLE RIVER

Benton Meadow	16A02	2344	1/27	19	4.8	4.9	5.2
Benton Spring	16A03	4900	1/27	34	9.5	16.2	13.2
Chewelah	17A04	4925	Not Measured				11.5
Heart Lake Trail	14C10	4800	1/31	33	10.6	12.5	12.8
Hoodoo Basin	15C10	6000	1/31	78	26.2	33.7	36.3
Hoodoo Creek	15C01	5900	1/31	74	24.6	31.2	32.5
Lookout	15B02	5250	1/30	46	15.0	22.0	25.4
Nelson	2D04CA	3050	1/30	24	6.7	14.	11.*
Schweitzer Bowl	16A06	4500	Not Measured			28.0	23.1
Schweitzer Ridge	16A05	6100	Not Measured			40.0	34.2

KETTLE RIVER

Barnes Creek	2B06CA	5300	1/30	50	13.1		13.4*
Big White Mtn.	2E03CA	5500	1/29	49	12.9	16.0	13.5*
Butte Creek	18A03	4070	1/28	32	8.0	8.1	6.7
Carmi	2E02CA	4100	1/30	22	4.6	6.5	5.0*
Farron #1	2B02CA	4000	Not Measured			13.6	9.4*
Farron #2	2.b02aC	4000	1/31	34	9.9	13.6	8.4*
Goat Creek	18A04	3595	1/28	26	4.9		5.4
Moashee Pass	2E01CA	4500	1/30	37	7.9		9.4*
Summit G.S.	18A05	2150	1/28	27	6.0	7.0	5.7
Trapping Creek Lower	2E05CA	3050	1/28	22	4.6	5.4	4.2*
Trapping Creek Upper	2E04CA	4450	1/28	32	7.3	9.0	7.1*

COLVILLE RIVER

Baird	17A06	3215	1/28	23	5.4	7.6	5.7
Chewelah	17A04	4925	Not Measured				11.5
Togo	18A10	3370	Not Measured				8.6

* Average for years of record.

Average based on 1961-1980 averages.

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SPOKANE RIVER

Above Burke	15B08	4100	1/30	30	9.0	12.5	16.4
4th of July Summit	16B03	3100	1/27	24	6.9	7.0	7.3
Lookout	15B02	5250	1/30	46	15.0	22.0	25.4
Mosquito Ridge	16A04	5110	2/01	56	18.2	30.4	24.5
Sherwin	16C01	3200	Not Measured			6.5	10.7
Sunset	15B09A	5600	1/31	42	13.2	21.8	27.4

NEWMAN LAKE

Ragged Ridge	17B02	3333	2/1	18	3.4	5.0	New
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OKANOGAN RIVER

Aberdeen Lake	1F01CA	4300	1/30	18	4.7	6.0	5.0*
Blackwall Peak	2G03CA	6250	1/28	61	17.5	22.9	24.0*
Brenda Mine	2F18CA	4800	1/30	32	8.5	9.7	9.4*
Brookmere	1C01CA	3200	1/31	13	3.8	5.3	7.0*
Enderby	1F04CA	6250	1/31	82	26.4	28.1	25.0*
Esperon Creek Lower	2F15CA	4400	Not Measured				7.8*
Esperon Creek Middle	2F15CA	4700	"	"			10.2*
Esperon Creek Upper	2F13CA	5400	"	"			10.6*
Grayback Reservoir	2F08CA	5225	1/30	26	7.0	7.7	6.2*
Hamilton Hill	2G06CA	4900	1/27	24	5.1	10.2	10.4*
Harts Pass	20A05A	6500	1/29	67	23.7	31.3	32.1
Isintok Lake	2F11CA	6300	1/29	14	3.1	5.5	5.9*
Lost Horse Mountain	2G04CA	7000	1/30	18	3.5	6.9	6.7*
McCulloch	2F03CA	4200	1/27	20	4.6	4.5	3.1*
Missezula Mtn.	2G05CA	5100	1/28	17	3.5	5.9	6.7*
Mission Creek	2F05CA	6000	2/01	47	13.2	9.2	8.4*
Monashee Pass	2E01CA	4500	1/30	37	7.9		9.4*
Mount Kobau	2F12CA	5960	1/28	33	9.4	10.9	8.7*

* Average for years of record.

Average based on 1961-1980 averages.

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

OKANOGAN RIVER (CONT.)

Mutton Creek No. 1	19A01	5700	1/26	34	10.0		9.6
Mutton Creek No.2 sp	19A11	6000	1/26		11.3s		New
Nickel Plate	2G02CAN	6200	Not Measured				4.2*
Oyama Lake	2F19CAN	4400	1/30	18	3.9	7.1	5.1*
Postill Lake	2F07CAN	4500	1/31	23	5.9	6.6	5.8*
Rusty Creek	19A03	4000	1/26	20	5.9		5.3
Salmon Meadows	19A02	4500	1/26	27	7.9		7.1
Silver Star Mountain	2F10CAN	6050	1/29	56	18.1	22.0	18.9*
Summerland Reservoir	2F02CAN	4200	1/28	23	5.9	7.5	7.4*
Sunday Summit	2G01CAN	4300	1/30	7	2.0	3.9	5.1*
Trout Creek	2F01CAN	4700	1/30	13	3.5	6.5	5.3*
Vaseux Creek	2F20CAN	4600	1/31	18	3.9	6.1	4.4*
White Rocks Mountain	2F09CAN	6000	1/30	48	16.9	15.7	16.7*

METHOW RIVER

Harts pass	20A05A	6500	1/29	67	23.7	31.3	32.1
Mutton Creek NO. 1	19A01	5700	1/26	34	10.0		9.6
Mutton Creek No. 2 sp	19A11	6000			11.3s		New
Rusty Creek	19A03	4000	1/26	20	6.0		5.6
Salmon Meadows	19A02	4500	1/26	27	7.9		7.1

CHELAN LAKE BASIN

Cloudy Pass +	20A22	6500	1/30	10	3.0		29.7
Lyman Lake	20A23	5900	1/30	121	44.4	47.3	39.8
Little Meadows	20A24a	5275	1/30	63	22.1	30.9	30.5
Mirror Lake	30A39	5600	1/30	60	19.5	26.8	New
Park Creek Ridge	20A12	4600	1/30	68	25.5	35.5	36.9
Rainy Pass	20A09	4780	1/30	61	19.4	27.4	29.6

* Average for years of record.

Average based on 1961-1980 averages.

+ Aerial stadia observation.

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

ENTIAT RIVER

Blue Creek G.S. +	20B28	5425	Not Measured			35.6	34.3
Brief	20B19	1600	1/30	16	4.5	7.4	6.8
Entiat Meadows +	20A33	4540	1/30	69	21.4	33.7	33.2
Entiat River Trail +	20A34	3325	1/30	42	12.2	17.5	18.5
Four Mile Ridge +	20B27	6800	Not Measured			24.4	30.9
Fox Camp +	20A36	6510	1/30	84	28.6	44.2	41.3
Pope Ridge	20B20	3450	1/30	41	11.2	13.9	14.7
Pugh Ridge +	20A32	6725	1/30	49	15.2	32.0	21.2
Shady Pass	20A37	6200	1/30	55	17.8	23.2	20.1
Snow Brushy +	20A35	3910	1/31	65	20.2	23.2	30.5
Tommy Creek +	20B21	4900	1/30	34	9.9	21.1	20.6

WENATCHEE RIVER

Berne Mill Creek	21B23	3170	1/31	41	14.0	18.8	20.8
Berne Mill Creek SP	21B41	3240	1/31	41	14.0	19.2	20.4
Blewett Pass No. 2	20B02	4270	2/01	19	7.7	12.0	13.2
Chiwaukum G. S.	20B16	1810	1/31	21	7.4	11.5	9.5
Lake Wenatchee	20B05	1970	1/31	19	7.0	11.0	11.6
Lyman Lake	20A23	5900	1/30	121	44.4	47.3	39.8
Merrett	20B18	2140	1/31	13	4.9	11.6	14.0
Stevens Pass	21B01	4070	1/31	68	26.8	33.5	36.0
Stevens Pass Sand Shed	21B45	3700	1/31	51	18.4	23.9	25.9

COLOCKUM CREEK

Trough #2	20B25	5310	1/28	6	1.8	13.3	7.4
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+ Aerial stadia observation

Average based on 1961-1980 averages.

SNOW DATA TO FEBRUARY 1 , 1984 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SQUILCHUCK CREEK

Beehive Springs	20B03	4400	1/28	11	4.7	7.4	6.5
Scout-a-Vista	20B04	3400	Not Measured			8.7	6.9

STEMILT CREEK

Stimelt Slide	20B06	5000	Not Measured			12.6	11.2
Upper Wheeler	20B07	4400	1/28	28	9.6	12.3	8.1

YAKIMA RIVER

Ahtanum R.S.	21C11	3100	1/26	16	5.5	9.6	6.1
Big Boulder Creek	21B09	3200	2/01		20.8s	13.6	
Blewet Pass No. 2	20B02	4270	2/01	19	7.7	12.0	12.6
Bumping Lake Old	21C08	3450	1/06	34	9.0	9.6	6.5
			1/30	26	9.0	13.5	13.3
Bumping Lake New	21C36	3400	1/06	42	11.0	11.8	8.3
			1/30	34	10.3	16.3	16.8
Cayuse Pass	21C06	5300	Not Measured			64.7	59.5
Colockum Pass	20B09	5370	2/01	36	13.4	14.9	11.8
Corral Pass	21B13	6000	2/01		8.6s		
Fish Lake	21B04	3371	Not Measured		20.1s	21.1	20.0
Green Lake	21C10	6000	1/26	55	20.5	20.9	20.1
Grouse Camp	20B11	5385	1/30	27	11.1	18.3	12.0
Lake Cle Elum	21B14	2200	1/31	5	2.2	5.3	8.5
Olallie Meadows	21B02	3625	1/30	38	17.5	23.	31.8
Stampede Pass	21B10	3860	2/03	61	25.8	28.2	31.5
Tunnel Avenue	21B08	2450	12/27/83	30	7.0	11.5	8.4
			1/31	24	8.6	13.8	16.8
White Pass E. Side	21C28	4500	12/27/83	41	14.0	11.9	10.5
			1/25	39	15.0	19.5	17.3

Average based on 1961-1980 Averages.

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

AHTANUM CREEK

Ahtanum R. S.	21C11	3100	1/26	16	5.5	9.6	6.1
Green Lake	21C10	6000	1/26	55	20.5	28.3	19.5

LOWER COLUMBIA DRAINAGEMILL CREEK

High Ridge	18D19	4150	Not Measured			20.4	17.7
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COWLITZ RIVER

Cayuse Pass	21C06	5300	Not Measured			64.7	59.5
White Pass E. Side	21C28	4500	12/27/83	41	14.0	11.9	10.5
			1/25/84	39	15.0	19.5	18.4

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	Not Measured			64.7	59.5
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GREEN RIVER

Airstrip	21B24	1800	2/02	0.0		2.4	1.8
Charley Creek	21B25	1200	2/02	0.0		0.0	1.5
Grass Mtn. No. 2	21B27	2900	2/02	0.0		3.8	13.2
Grass Mtn. No. 3	21B28	2100	2/02	0.0		0.0	4.3
Lester Creek	21B29	3100	2/02	23.	8.2	10.6	16.2
Lynn Lake	21B50	4000	2/02	13.	5.2	25.4	15.6
Sawmill Ridge	21B31	4700	2/02	41	15.2	28.8	25.9
Stampede Pass	21B10	3860	2/01	61	25.8	28.5	30.1
Twin Camp	21C30	4100	2/02	25	10.6	15.5	17.3

Average based on 1961-1980 averages

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SNOQUALMIE RIVER

Olallie Meadows	21B02	3625	1/30	38	17.5	23.0	31.8
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SKYKOMISH RIVER

Stevens Pass	21B01	4070	1/31	68	26.8	33.5	36.0
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Stevens Pass Sand Shed	21B45	3700	1/31	51	18.4	23.9	25.9
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SKAGIT RIVER

Beaver Creek Trail	21A04	2200	1/31	12	4.1	10.7	11.3
Beaver Pass	21A01	3680	1/30	32	13.3	24.1	21.4
Brown Top Ridge	21A28	6000	1/29	111	34.6	39.2	43.9
Devils Park	20A04	5900	1/29	66	18.6	30.4	32.5
Freezeout Creek Trail	20A01	3500	1/30	14	4.5	9.7	10.3
Freezeout Meadows New	20A38	5000	1/29	49	13.0	37.3	25.4
Granite Creek	21A29	3500	1/30	27	8.2	14.6	16.3
Harts Pass	20A05A	6500	1/29	67	23.7	31.3	32.1
Klesilkwa	3d03ACA	3700	2/01	11	3.2	9.9	9.5*
Lightning Lake	3D02CAN	4000	Not Measured				5.8*
Lyman Lake	20A23	5900	1/30	121	44.4	47.3	39.8
Meadow Cabins	20A08	1900	1/30	6	3.0	4.1	6.9
New Hozomeen Lake	21A30	2800	1/30	9	3.0	8.4	9.5
New Tashme	3D01CAN	2500				6.0	8.3*
Rainy Pass	20A09	4780	1/30	61	19.4	27.4	29.6
Thunder Basin	20A07	4200	1/30	17	4.6	16.0	17.0

Average based on 1961-1980 averages

* Average for years of record

SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

BAKER RIVER

Dock Butte +	20A11A	3800	1/30	86	33	36.0	44.4
Easy Pass +	21A07A	5200	1/30	87	33	53.0	54.7
Jasper Pass +	21A06A	5400	1/30	124	47	77.0	66.5
Martin Lake	21A09A	3600	1/30	102	39.0	50.0	51.9
Mt. Blum +	21A18A	5800	1/30	90	34.0	66.0	44.3
Rocky Creek	21A12A	2100	1/30	12	5.0	14.0	22.6
Schreibers Meadow	21A10A	3400	1/30	54	21.0	29.0	38.5
S.F. Thunder Creek +	21A14A	2200	1/30	0.0		0.0	8.1
Watson Lake	21A08A	4500	1/30	71	27.0	44.0	41.3

OLYMPIC PENINSULA DRAINAGEDUNGENESS RIVER

Deer Park	23B04	5200	1/30	20	8.9	17.8	14.0
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MORSE CREEK

Cox Valley	23B14	4500	1/28	50	21.1	30.2	26.7
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ELWHA RIVER

Hurricane	23B03	4500	1/29	29	11.2	15.1	14.6
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+ Aerial stadia observation

Average based on 1961-1980 average

SNOTEL READINGS, 1984 -APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

PEND OREILLE RIVER

Bunchgrass Meadow	17A01	5000	12/15/83		10.2		
			12/31/83		2.8	8.3	
			1/31/84		16.0	14.7	

OKANOGAN & METHOW RIVERS

Harts Pass	20A05	6500	1/01		13.8	16.7	
	GT		1/30	74	20.3	31.3	
			2/01		21.7	30.0	
Salmon Meadow	19A02	4500	12/30/83		13.5	11.2	
	GT		1/26	27	(7.9)		
			1/29		12.9	19.6	

CHELAN LAKE BASIN

Lyman Lake	20A23	5900	1/01		30.8	28.4	
	GT		1/30	118	(38.8)		
			2/01		43.3	37.8	
Mirror Lake	20A39	5600	1/03		18.5		
	GT		1/30	64	(21.0)		
			1/27		21.5	26.8	
Park Creek Ridge	20A12	4600	12/30/83		17.8	17.4	
	GT		1/30	68	(25.5)		
			2/01		27.1	31.4	
Rainy Pass	20A09	4780	12/30/83		11.5	14.4	
	GT		1/30	49	(17.5)	27.4	
						29.2	

ENTIAT RIVER

Pope Ridge	20B20	3450	1/01		11.6	10.4	
	GT		1/30	39	(12.4)	15.5	
			2/01		12.9	14.8	

WENATCHEE RIVER

Blewett Pass	20B02	4270	1/01		14.8	9.0	
						12.0	
			2/01		13.0	14.6	
Lyman Lake	20A23	5900	1/01		30.8	28.4	
			2/01		43.3	38.2	
Stevens Pass	21B01	4070	12/30/83		20.2	20.7	
			2/01		25.5	18.2	
Trough # 2	20B25	5300	1/01		7.7		
	GT		1/28	6	(1.8)	13.3	
			1/30		1.0	13.9	

GT = Ground Truth measurement at SNOTEL site

SNOTEL READINGS, 1984 -APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

COLOCKUM CREEK

Trough # 2	20B25	5300	1/01		7.7	
	GT		1/28	6	(1.8)	13.3
			1/30		1.0	13.9

STEMILT CREEK

Upper Wheeler	20B07	4400	1/01		9.6	15.3
	GT		1/28	30	(9.0)	
			2/01		9.1	22.6

YAKIMA RIVER

Big Boulder Creek	21B09	3200	1/02		12.4	11.9
	GT					
			2/01		12.7	15.9
Bumping Ridge	21C38	4600	1/01		20.8	
	GT					22.4
			2/01		21.3	
Corral Pass	21B13	6000	1/01		12.7	15.1
			2/01		8.6	24.8
Fish Lake	21B04	3371	1/01		17.7	
	GT					21.1
			2/01		20.1	
Green Lake	21C10	6000	1/01		12.4	12.8
	GT					28.3
			2/01		12.4	20.9
Grouse Camp	20B11	5385	1/01		13.7	11.9
	GT					18.3
			2/01		12.0	16.2
Morse Lake	21C17	5400	1/01		27.5	28.6
			2/01		32.9	48.1
White Pass E. Side	21C28A	4500	1/01		14.8	10.9
	GT					19.5
			2/01		16.3	19.4

GT = Ground Truth measurement at SNOTEL site

SNOTEL READINGS, 1984 -APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average †

AHTANUM CREEK

Green Lake	21C10	6000	1/01		12.4	12.8
	GT					28.3
			2/01		12.4	20.9

TOUCHET RIVER

Touchet # 2	17C5	5530	1/01		13.4	14.2
	GT		1/30	42	15.0	
			1/30		15.0	21.8

LEWIS RIVER

June Lake	22C09	3200	1/01		5.4	
			2/01			
Lone Pine Shelter	21C26	3800	1/01		21.0	
			2/01			28.3
Plains of Abraham	22C01	4400	1/01		44.5	
			2/01		40.0	
Sheep Canyon	22C10	4050	1/01		19.8	
			1/31		19.2	
Spencer Meadow	21C20	3400	1/01		12.3	17.0
			2/01		12.4	21.1
Surprise Lake	21C13	4250	1/01		28.7	
	GT					32.7
			2/01		33.6	31.3

COWLITZ RIVER

Pigtail Peak	21C33	5900	1/01		25.8	21.0
			2/01		29.5	36.2
Potato Hill	21C14	4500	1/01		14.0	
			2/01		14.2	
Sheep Canyon	22C10	4050	1/01		19.8	
			1/31		19.2	
Strawberry Landing	22C08	3280	1/01			16.7
			2/01			25.5

GT = Ground Truth measurement at SNOTEL sites

SNOTEL READINGS, 1984 -APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average †

NISQUALLY RIVER

Paradise Park	21C35	5500	12/29		42.2		
			2/01		49.1		

WHITE RIVER

Corral Pass	21B13	6000	1/01		12.7	15.1
			2/01		8.6	24.8
Morse Lake	21C17	5400	1/01		27.5	28.6
			2/01		32.9	48.1

GREEN RIVER

Cougar Mountain	21B42	3200	12/30/83		14.5	4.8
			1/30		11.0	6.0
Stampede Pass	21B10	3960	12/31/83		24.4	12.0
	GT					28.5
			2/01		27.1	27.0

SNOQUALMIE RIVER

Olallie Meadows East	21B55	3960	12/30/83		27.0	22.1
			2/01		31.1	35.9

GT = Ground Truth measurements at SNOTEL sites

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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